Washington State
Hazard Mitigation Grant Program Application
STEP by STEP

This Step by Step worksheet will walk you through the Hazard Mitigation Grant Program (HMGP) Application. Not all questions are included. If you still have questions, please do not hesitate to call the HMGP staff of Washington Emergency Management Division at **1-800-562-6108**. If **any** sections or questions are left unanswered, the application can be determined ineligible and not considered for funding.

Initial Eligibility Checklist

The following questions were developed to help you determine if you should proceed with your request for hazard mitigation funds through this voluntary, competitive process. These questions are not all-inclusive, but are the areas to help clarify an applicant's eligibility. You may want to review the checklist prior to submission as a reminder to check for all required documentation.

CHAPTER 1 PROJECT INFORMATION

SECTION 1 PROJECT DATA

A. **Project Information:**

1. *Applicant Name:* The name of your jurisdiction (county, city, other)
2. *Project Title:* Any name that you chose to distinguish your project. (Please try to avoid the words "Hazard" or "Mitigation")
3. *Project Cost:* Total project cost (Federal, State and Local)
4. *Federal Tax ID #:* Federal Tax ID of your jurisdiction
5. *Basis of Applicant Eligibility:* Check only one box that identifies your form of jurisdiction.

B. *Briefly describe your hazard and the goal of your project.* Write a paragraph describing the goals of the project and how you intend to accomplish the goals. Goals should be phrased as "To protect lives" or "To protect or remove from threat a certain facility." Remember that a goal is not "To elevate homes" or "To structurally retrofit a building."

C. *National Flood Insurance Program (NFIP) Community Assistance Visit (CAV):* The intent of this question is to determine that your community is in compliance with the NFIP, and that the NFIP State Coordinator has no concerns regarding your jurisdiction's compliance or eligibility.

Don't forget to provide certification (letter or e-mail) from the Washington State Department of Ecology NFIP State Coordinator that

your community currently has NO outstanding NFIP or CAV issues/violations and that you have a "compliant" flood ordinance approved and adopted by the application due date. Also, these are requirements throughout the application; for those jurisdictions that are approved, the requirements continue throughout the grant process. If a jurisdiction receives a CAV or negative compliance issue following receipt of a grant, it can be cause for recapturing of the grant funds. For applicants that do not have land use policy control, contact the jurisdiction in which your project is located for the status or contact Ecology directly.

SECTION 2 PROJECT SITE INFORMATION

PROPERTY SITE INVENTORY SHEET KEY POINTS

This information is required for EACH property and/or structure affected by ALL project types (acquisition, relocation, elevation, retrofits, etc.). Include a separate sheet for each property and/or structure. Make sure to include a sheet for each alternate property as well, or these may be deemed ineligible due to being incomplete or an individual changes their mind, allowing the jurisdiction to move ahead with its project. For each Property Site Inventory Sheet (Q. 24), prioritize (1 of 8, 2 of 12) each structure or home. The table was created to place a large amount of detail in one area. If the table does not work for you, use the same information in a text format.

- **MAPS (Attach)**
  A site map is a general vicinity map and a plat map is a tax or parcel map.

- **PHOTOS (Attach)**
  Photos of each structure/building 49 years or older should be submitted with the application to reduce the review time required by the State Historic Preservation Officer (SHPO). A minimum of five photos should be taken of each building: one photo of each façade so that both the entire wall and the extent of the roof line appear in the image and one streetscape or contextual view showing the building and its neighbors. Where possible please take each of the photos at an oblique angle. Photos of all other projects should demonstrate the hazard and need, as well as the environmental surroundings, if possible. No polaroids, please.

- **FAIR MARKET VALUE**
  Fair market value is the value derived from a reasonable methodology that has been consistently applied throughout the community, such as independent appraisals, opinions of value, or a formula based on tax assessments. The amount of compensation is based upon an appraisal that uses a standard approach for studying the property in the light of its own characteristics and location in relation to sales of other similar sites in the same general area. "The amount of cash, or in terms reasonably equivalent to cash, for which in all probability the property would be sold by a knowledgeable owner willing but not obligated to sell to a knowledgeable purchaser who desired but is not obligated to buy." For the HMGP projects, FEMA should coordinate with the state and the subgrantee (community) in

their determination of whether the valuation should be based on pre- or post-flood market value. However, all appraisals in a given community should be based on the same terms. If the current property owner purchased the flood-damaged property after the disaster declaration, then the community cannot offer the owner more than the post-flood fair market value, (i.e., the amount paid by the current owner for the damaged property.)

- **DUPLICATION OF FEDERAL BENEFITS**
  Federal funds cannot be used as a match for this program. If individuals have received any other benefits, the amount received will be deducted from the final appraised value of the home if no repairs have been made. If repairs have been made, homeowner must provide copies of receipts or proof that repairs were completed.

  If the project is part of a Project Worksheet under the Public Assistance Repair and Restoration program, your jurisdiction must do the repairs, appeal, or request an improved project. There are times that this may require doing a project under a Project Worksheet and redoing portions if your application is successful in this competitive grant process, due to restrictions in law.

- **DAMAGE SOURCE**
  If your jurisdiction experiences multiple hazards, please identify the hazard and damages separately for each event.

SECTION 3 PROJECT WORKSHEETS

A. *Is this site covered under or connected to a Project Worksheet (PW) under the (Public Assistance) Repair and Restoration Program of PL 93-288, as amended?* A Project Worksheet is a document prepared by a joint federal, state and local team that conducted damage assessments in the community, following the disaster, in order to determine the repair and restoration work necessary to return public facilities to pre-disaster condition.

B. *If you do not have a PW, check "NO" and move on to Section 4.* If you check "YES," explain why this mitigation measure was not included as part of the project.

SECTION 4 APPLICANT AGENT INFORMATION

Please enter the contact information for the person(s) who will be able to act as the contact person between the state of Washington and your jurisdiction. **This should be a person(s) who has been involved in the preparation of the application, is familiar with the proposed project, has signature authority, and can make decisions for the applicant**. Recognizing that there are many individuals on your project team, you may want to designate an alternate applicant agent and a project manager to act as points of contact on technical aspects of the project.

SECTION 5 RESOLUTION DESIGNATING APPLICANT AGENT

An agent must be designated by your jurisdiction's Chief Executive Officer (CEO) to sign application, grant agreements and payment vouchers (for approved projects) and work with State Emergency Management Division on the jurisdiction's behalf. You may use the attached form or any other method your jurisdiction employs. A jurisdiction's CEO cannot appoint themselves as applicant agent. Each disaster event needs a new and specific resolution or letter for that disaster and for the particular program—HMGP.

- **Local Hazard Reduction Plan/Strategy**
  A document that identifies and analyzes the hazards, risks and vulnerabilities of a given jurisdiction (entity) and provides key decision makers an action plan on how to deal with those hazards.

SECTION 6 CERTIFICATIONS AND ASSURANCES

Applicant agent must read and sign. All applications and attachments become the property of Washington State Emergency Management Division once submitted. Successful applications become a part of the final grant agreement. If an applicant agent changes, a new resolution and certification and assurances are required.

SECTION 7 PROJECT BUDGET AND FUNDING SOURCES

The following budget information applies to your Proposed Action Alternative only. Attach project cost breakout for each site/structure and include totals in this section.

A. *Estimated Project Costs:* Detail all of the expenses (except administrative) needed to complete the proposed HMGP project. **DO NOT INCLUDE ANY COSTS ACCRUED PRIOR TO THE FUNDING BEING AWARDED OR USE AS MATCH.**

NOTE: *Costs associated with administering this grant will be funded separately from project costs and will be reimbursed as a percentage of the eligible costs as established in PL 93-288, as amended, and according to Section 206.439.44 CFR. Reimbursements for direct costs are as follows:*

- *For the first $100,000 of net eligible costs, 3 percent of approved costs.*
- *For the next $900,000 of net eligible costs, 2 percent of approved costs.*
- *For the next $4,000,000 of net eligible costs, 1 percent of approved costs.*
- *For net eligible costs equaling $5,000,000 or more, 1/2 percent of such costs.*
  Do not include administrative costs as part of your grant request.

B. *Applicant Funding Source(s):* Please identify the source(s) of your share for the project. The local share must come from a non-federal source (with the exception of Community Development Block Grant funds). Failure to identify the minimum local share (and any additional funds required if there is a funding cap) will make the application **INELIGIBLE**.

Detail the sources of funding for your jurisdiction's share of the project. FEMA only contributes 75% of the eligible costs of a project. In most disasters, the state of Washington will contribute up to ½ of the non-federal share of the eligible project costs (normally 12 ½ percent of the costs). For example:

- If your project cost $500,000, the jurisdiction's local match would be $62,500.
- If your project cost $5,000,000 and the funding cap is $2,500,000, then the local match for the jurisdiction would be $2,812,500 ($312,500 + $2,500,000). The jurisdiction is responsible for 12.5% of the $2.5 million cap for this disaster and 100% of the remaining $2.5 million of the $5 million project.

You need to document the source(s) of your local match and provide assurance it has been secured. For example:

- If your source is a special levy, provide documentation that it has passed.
- If your source is a federal, state or private loan, provide documentation that it has been approved.
- State Agencies (including universities and colleges) may have the match provided by the Legislature, administered through the Military Department, Emergency Management Division.

C. *Non-Applicant (Outside Sources) Project Funds*

Sometimes HMGP projects are part of a larger project, or a community is seeking assistance to meet their HMGP match requirements. Please identify other funding you have **applied** for (Public Works Trust Fund; FCAAP; CDBG; other) and the status of that application or award (verified in writing whenever possible). If you have not applied for other funding sources, please explain why. Do NOT restate the HMGP funds for this project. What **other** funding has been committed to this project?

1. If the HMGP is part of a larger project, or if you have outside funds committed as part of your local match, please identify these funds in table provided, **other than Hazard Mitigation Grant Program** funds. Describe any constraints or conditions on the sources you list in the table. We realize that applicants often fund projects in phases and that HMGP may fund just one phase or aspect of the project. Also, applicants often package funds from other grant or loan programs to provide complete funding of the entire project.

   Note: Federal funds (except CDBG) cannot be used as a match for HMGP funds and HMGP funds cannot be used as a match for other federal programs (i.e., NRCS, Corps of Engineers).

2. *If a Hazard Mitigation grant is not provided, or delayed, what impact will this have on the timing of your project? How will this affect your ability to use alternate funds committed to this project?* Explain if you will continue with this

project or delay it in any way if the funding is not acquired through the HMGP. Document all prior attempts to secure funding for this project (e.g., levies, tax increase, applied for grants, loans).

SECTION 8 ESTIMATED SCHEDULE FOR PROJECT COMPLETION

Give your best estimate on when each phase of the project can be completed. We have provided our best estimate on when grant agreements may be signed to begin projects. (This is only an estimate. HMGP cannot predict FEMA's timetable to approve funding of projects.) For estimation purposes, allow up to four months following the application due date for the state review of eligibility and up to 18 months for the FEMA environmental and final reviews.

SECTION 9 APPLICANT'S NARRATIVE RESPONSE

FEDERAL CRITERIA - FEDERAL GOALS AND OBJECTIVES

Federal regulations governing the Hazard Mitigation Grant Program (44 CFR Part 206 Subpart N Section 206.434 and 206.435) establish the minimum criteria that proposed projects must meet to be eligible for grant funding, as administered by the state.

STATE CRITERIA - STATE GOALS AND OBJECTIVES

The state of Washington has established the following damage reduction goals:

- Save lives and reduce public exposure to risk
- Reduce or prevent damage to public and private property
- Reduce adverse environmental or natural resource impacts
- Reduce the financial impact on public agencies and society

These are not meant to be true/false questions. Answer in essay form HOW your project will achieve these goals. Each question receives a point score to evaluate it with other projects. Note: Not every question will apply to each project application—use N/A as appropriate.

The questions in this section relate to specific objectives that the state and federal governments wish to accomplish through the Hazard Mitigation Grant Program. To determine whether your proposal meets the minimum state and federal criteria, you must provide a **clear and detailed, written response** to each item below.

1. *Does your jurisdiction have an adopted local hazard reduction plan/strategy? If so, is this proposed project identified in it?*
   Does your community have a flood hazard reduction plan, a Shorelines Management Plan, or similar comprehensive land use document with hazard mitigation strategies? Many jurisdictions have Capital Improvement Project (CIP) plans, but these do not address the specific issues of hazard reduction.
   Contact your public works, community development and/or local emergency management organization. If your jurisdiction has a hazard mitigation plan, please show if, and where, this project is identified in your plan.

2. *Describe how this project will protect lives and reduce public risk.*
   Explain how this project will accomplish these goals. For example, “Acquiring and removing a structure from the floodway will remove people from flood water risks or seismically retrofitting a structure will reduce the risk of injury or death to those in or around the structure.”

3. *Describe how this project will reduce the level of hazard damage vulnerability in existing structures and developed areas.*
   Explain how this project will accomplish these goals. For example, “It will remove the existing structures away from or above the 100-year floodplain or it will seismically retrofit existing structures bringing them up to current earthquake code.”

4. *Describe how this project will reduce the number of vulnerable structures through acquisition, relocation and/or retrofit. If acquiring, describe your jurisdiction’s plans for the acquired property (open space, recreational use).*
   Explain how this project will accomplish these goals. For example, “It will remove two structures from the floodplain through acquisition and demolition of the structure. The area will be left as an undeveloped scenic area in perpetuity and recorded on the deed restrictions.”

5. *Describe how this project will avoid inappropriate future development in areas that are vulnerable to hazard damage (example: floodways, liquefaction zones).*
   Explain how this project will accomplish these goals. For example, “The county will own this property and local ordinances (including building codes) have been developed and enforced to limit development in these areas.”

6. *Describe how the project will solve a problem independently, or function as a beneficial part of an overall solution. (If part of a larger project, assurance must be provided with the application that the overall project will be completed.)*
   Explain how this project will accomplish these goals. For example, “This project removes repetitively damaged structures from the floodplain or seismically retrofitting a critical facility (hospital) helps assure the critical function continues before and after a seismic event.”

7. *Describe how this project will provide a cooperative, inter-jurisdictional or inter-agency solution to the problem.*
   Explain how this project will accomplish these goals. For example, “This project has been reviewed and is supported by the downstream communities. Letters of support and comments are attached which indicate the solution works to protect the environment in all downstream communities by removing a little used bridge at Fourth Avenue that has been the site of repetitive landslides and log jams.”

8. *Demonstrate that this project will provide a long-term mitigation solution (not a short-term fix) in locations that experience repetitive hazard damage.* Explain how this project will accomplish these goals. For example, “This project permanently removes structures from the floodplain. This project will last for at least 100 years without rebuilding.” (Please note - dredging is not a long-term solution.)

9. *Show how this project will address emerging hazard damage issues (such as the damage caused by storm water runoff at build-out densities, trees in right-of-ways, identification of new EQ fault lines).*
   Explain how this project will accomplish these goals. For example, "This acquisition project and resulting deed restrictions will prevent future development in this area."

10. *Describe how this project will restore or protect natural and/or built environmental values.*
    Explain how this project will accomplish these goals. For example, "This project will remove residential structures from the floodplain and allow the restoration of the floodplain to a natural environment, enhancing wildlife habitat. Seismically retrofitting this building will maintain the integrity of the building and the structures around it."

11. *Describe your jurisdiction's implementation of all ordinances, standards, and/or regulations that identify and address disaster-related hazards, and which serve to reduce future hazards. This can include local land-use ordinances and a local hazard mitigation plan.*
    Explain how this project will accomplish these goals. For example, "Our jurisdiction has developed a flood hazard reduction plan to identify and offer solutions to high risk flood hazards, and relates to our critical area ordinances, zoning and building codes."

12. *Describe how your jurisdiction is increasing public awareness of hazards, preventive measures, and emergency responses to disasters.*
    Explain how this project will accomplish these goals. For example, "Our jurisdiction has developed a local flood plan and is working with the National Flood Insurance Program's Community Rating System developing educational workshops and flood planning. Our jurisdiction has performed a Hazard Identification and Vulnerability Assessment and provides information on reducing risks and vulnerability through the media and at county fairs."

13. *Describe how the project, upon completion, will have affordable operation and maintenance costs that the applicant jurisdiction is committed to support.*
    Explain how this project will accomplish these goals. For example, "This project will require limited maintenance for this area because the area will be left as an open space. Should the Parks Department develop a trail system, the county will be able to provide the estimated $2,000 in annual maintenance costs."

14. *Describe how the proposed project improves your jurisdiction's ability to protect its critical areas, as required by the Growth Management Act (RCW 43.17.250)? This can include the completion of your community's Critical Areas Ordinance, as required by the GMA.*
    Even if your jurisdiction does not participate in the broad initiative of the Growth Management Act (GMA), communities are required to identify CRITICAL AREAs within the community. Explain how this project will accomplish or support these goals. Note: State agencies and other eligible applicants that do not have land use control should coordinate with the jurisdiction in which your project is located.

CHAPTER 2 ENVIRONMENTAL AND HISTORICAL DATA

The National Environmental Policy Act (NEPA) requires public notification and involvement in the development of alternatives and selection of the proposed action alternative for any projects using federal funds. *To ensure adequate involvement, State HMGP requires the public notification process be completed no sooner than* ***December 17, 2001*** *and no later than* ***May 15, 2002*** *(to include a notice in a newspaper of general circulation of the project). The state also requires (for the second round) every project to have a minimum of one public meeting and/or workshop for which the specific agenda item or topic of meeting was advertised.* Even if you submitted an application in the first round for the Nisqually Earthquake, priorities change as do individual's interests.

SECTION 1 NOTIFICATION AND PUBLIC INVOLVEMENT

A. *Describe the* ***recent public involvement*** *(involvement since the disaster was declared) in the alternative development and selection process, especially those individuals that this project may impact.* ***Provide documentation*** *(all forms of notices, meeting minutes and agendas indicating intent to obtain comments and prioritization of projects and if funded, to follow through with the planning requirements), sign-in sheets, flyers, written notices to/from homeowners and others affected by this action; print outs of website postings).*

Provide a description of all public meetings and/or workshops with the public. You may use your accustomed, standard method of notification, however, you must include the following six points within the announcement: 1) Intent to apply for federal and state funds through the HMGP; 2) Identify that there is a local match involved; 3) Identify your particular hazard; 4) You may include "possible" solutions to your hazard; 5) There is a hazard mitigation planning requirement; and 6) Allow for public comment to help develop alternatives.

Sample Public Notice:
APPLICANT intends to apply for federal and state funding through the Federal Emergency Management Agency's Hazard Mitigation Grant Program, which is administered by Washington State's Emergency Management Division. Local funds will be used as a match if the project is approved. An all hazard mitigation strategy will be developed, also. We invite you to a public meeting on DATE to share ideas and comments regarding potential projects and alternatives to address our _____ hazard. All comments must be received by DATE. Please send written comments to _____, or call (___)___-____ .

B. *Describe the* ***recent involvement*** *your agency has had with other federal, state, local, or tribal agencies regarding the planning, impact, and support of alternatives.* ***Provide documentation*** *(all forms of notices, meeting minutes and agendas, sign-in sheets, flyers).*

Provide a description of all communications with other agencies and jurisdictions regarding the project. Provide the name, agency, and phone number of any specific person with whom you have been in contact. Simply mailing a letter to an affected agency or jurisdiction is not considered adequate inter-agency communication. Make sure to include copies of all documentation regarding communication and attach any letters to this application. It is especially important to identify that contact has been made with neighboring communities that may be affected by this project. For example, if your project will require an HPA from Washington Department of Fish & Wildlife, you must provide documentation that WDFW has initially reviewed the proposal and has no issues at the time that will prevent it from issuing an HPA for the project.

C. *How has your jurisdiction coordinated the planning and possible impacts of this project with neighboring jurisdictions, including counties, cities, states, tribes, fire, police, public works, utilities?*
Please explain. For example, a county may want to acquire several homes located within a floodplain, but a school or fire district may have concerns regarding the fact that the removal of those residents will subtract from the tax base. These concerns must be anticipated and coordination must occur with all neighboring jurisdictions. Attach and refer to any documentation.

D. *Will this project affect upstream/downstream/neighboring jurisdictions? Explain, in detail, to what extent this affect will be, and why the problem has not been addressed in the past, either by your jurisdiction or inter-jurisdictionally with the other interests?*
For example, a project by a water district to retrofit a reservoir may affect a nearby fire district in a positive manner by allowing the continued storage of water to be used during a fire emergency, however, may negatively affect the fire district during the short-term construction period when water is removed.

SECTION 2 SELECTION OF BEST PROJECT ALTERNATIVE

As part of the National Environmental Policy Act (NEPA) process, the Hazard Mitigation Grant Program (HMGP) requires a narrative discussion of at least THREE (3) alternatives (from No Action to the most effective, practical solution) and their impacts (beneficial and detrimental). In the space below, please describe the process used in selecting this project over the other possible alternatives and why it represents the best solution to the problem. (Use additional sheets if necessary.)

- Describe why and how the proposed action alternative was selected over all of the other alternatives reviewed, and why it is the best solution to your particular hazard. Indicate who was involved, how the various alternatives were prioritized and decisions made through this process.

ALTERNATIVE REVIEW FORMS: PARTS 1, 2 and 3

The narrative sections must be thoroughly completed. It is in your best interest to spend some time developing a comprehensive 'word picture' of the hazard, the proposed project, and how it solves the problem. The reviewers also will need to know that you have thought through and considered every viable option to meet your goals. If you feel that there is only one option available, then consider what you would do if you had the money available but could not do your first option, this will be your second alternative. Also, consider whether the costs of the project–after determining all of the benefits of the project–will still outweigh the cost of doing nothing.

1. *Description of the Alternative:*

   Proposed Action Alternative: This is the preferred or highest priority action. Describe the project that you would like to accomplish. Be as specific as possible, providing all components, actions, costs, and amount of time needed to complete the project. How will it work? What does it do? How does it solve the problem? The description MUST be thorough enough to allow an adequate evaluation of the project, of both the benefits and the impacts. Make sure to include all relevant details, including the equipment to be used, amounts of materials, as well as any diagrams and sketches.

   Second Alternative: Describe an alternate project that could be developed if the Proposed Action Alternative could not be developed, funded, or was not approved. Be as specific as possible, the description MUST be thorough enough to allow an adequate evaluation of the project, of both the benefits and the impacts. Make sure to include all relevant details, including the equipment to be used, amounts of materials, as well as any diagrams and sketches.

   No Action Alternative: Describe what would reasonably be expected to occur if you did nothing.

2. *Project Costs of this Alternative:* What is the project cost of each alternative ($)?

3. *Benefits of this Alternative:* What is the quantifiable benefit of each alternative ($)? (In particular, what is the quantifiable financial benefit to the federal, state, and local governments.) "Quantifiable benefits" are avoided future costs (e.g., the project will protect the area from this amount of future damages).

4. *Description of surrounding environment. Include information regarding both natural (ex., fish, wildlife, streams, soils, plant life) and built (ex., public services, utilities, land/shoreline use, population density) environments:* Describe the environment surrounding each alternative. Paint a "word picture" of each area.

5. *Briefly describe any positive environmental impacts of the project:* For each alternative, describe how the environment will be positively affected.

6. *Check any potential adverse impacts that apply:* Check as many boxes as may apply to that particular alternative--be it permanent or temporary. This section is not

a scored part of the application and it is best to be forthright with any outstanding issues, as it will help save time during the environmental review process.

7. *Is there potential for degradation of already poor environmental conditions?* Check Yes or No as to whether the project will further degrade already poor conditions.

8. *Is there potential to violate any federal, state, local, or tribal law or code to protect the environment?* This can include any resolution by any governing entity.

9. *Briefly describe any of the areas noted in questions 6, 7, or 8:* Provide a detailed description to illustrate any of the negative impacts—permanent or temporary--and explain how the benefits would outweigh those impacts.

10. *Describe how the proposed project will reduce or eliminate the need for future state or federal disaster assistance?* "Removing structures from the floodplain will completely eliminate the need for future disaster assistance as well as reduce the potential need for emergency personnel to rescue those that would have been impacted."

SECTION 3 ENVIRONMENTAL DATA CHECKLIST

To be completed for ALL project types

It is not expected that you will know all of the answers to the following questions, however, it is important to identify any conditions for which you are aware. This will significantly reduce the time required for the environmental and historical review.

A. HISTORIC AND ARCHAEOLOGICAL RESOURCES (Public Law 96-515, Sec. 106)

1. *Is there a potential for archaeologically-significant resources to be located on or near the site?*
   Is there a potential for the project site to be located in or near the vicinity of historically known cultural activities? Examples may include an indigenous settlement, migration route, or a burial site.

2. *Are there structures in the project area that are 49 years or older? For each of these a determination by FEMA must be made regarding the potential to be historically significant.*
   Make sure to include good quality photos of the structure/building as explained on the Project Site Inventory Sheet Key Points in Chapter 1, Section 2 of this guide. This will reduce the review time required by the State Historical Preservation Officer (SHPO).

3. *For any structure 49 years or older, provide the date/age of the building and whether it has been remodeled. Provide any known historical knowledge of the site, such as past use, owners or renovations.*
   If the history of the building or structure is unknown, check with the homeowner if applicable, also, the Assessor's Office may have additional data.

4. *Has there been any consultation with the State Historic Preservation Officer (SHPO) regarding the project? If yes, describe and include any documentation.*

B. FLOODPLAINS AND WETLANDS DISCLOSURE (Floodplains: RCW 86-16 and Presidential EO-11988 / Wetlands: Governor's EO-90-04 and Presidential EO-11990)

1. *Is there a wetland, as defined by either the U.S. Fish and Wildlife Service or the Clean Water Act, on the site or within the immediate vicinity?* Include documentation as necessary.

2. If you answer YES to the above question, we will require that you comply with the Governor's Executive Order 90-04. This may include the preparation and Department of Ecology's approval of a **Wetlands Compensatory Mitigation Plan**. If applicable, the Department of Ecology must approve the plan before we approve HMGP funds. Please indicate what actions, if appropriate, you are taking concerning wetlands.

3. *Please identify the following:*

   FEMA Flood Insurance Panel Number: _____
   FEMA Flood Insurance Rate Map Zone Designation: _____

4. *Complete the following 8-Step Process to show compliance with Executive Orders 11988 (Floodplain Management) and 11990 (Wetland Protection).* The 8-step process is not optional should any part of the proposed project be located in the 100-year floodplain or contains wetlands. Delaying this process, such as the requisite public notice, can later delay the start of the project, if approved. Describe, in detail, your compliance with each step of the process. You may find that you have already detailed your compliance with one of the steps while answering another question in this application. If so, you may reference that answer. Note that if your project is located outside the floodplains or wetlands, whether designated on a FEMA Flood Insurance Map or not, you do not need to go beyond step 1 of this process.

The **8-step process** can be simplified into these steps:

1. Is project located in a floodplain or wetland?
2. Encourage public involvement
3. Evaluate alternatives
4. Assess impacts

5. Minimize impacts
6. Determine practicability
7. Provide public explanation
8. Comply with Executive Orders

5. *Describe any outstanding issues of compliance with Executive Orders 11988 and 11990.* Indicate if there were any problems encountered when complying with the 8-step process.

C. ENVIRONMENTAL JUSTICE (Executive Order 12898)

1. *Are there concentrations of minority or low income populations in or near the project area?* If unknown, a helpful source of information may be the Census 2000 website, http://www.census.gov/main/www/cen2000.html or on the EPA environmental justice mapper website http://es.epa.gov/oeca/main/ej/ejmapper/.
2. *Would they be disproportionately impacted by this project? If yes, discuss how the project will provide sufficient benefit to outweigh the described impact. Also, describe any additional minimization measures that will be taken.*

   Two examples of "impacts:" 1) Displacement, regardless of how many people displaced, either from employment or from residence, whether temporary or not. 2) Removal of a structure, such as a bridge or a road, that provides an alternate route for the community's ingress and egress. This example could be either a beneficial impact or an adverse impact. If there will be any adverse impact(s), discuss how the project will provide sufficient benefit to minority or low-income populations that will outweigh the described adverse impact.

3. *Include any socio-economic data used to make the above determinations*. Describe how you came to the conclusions in the above questions; make sure to include all documentation.

D. TOXIC AND HAZARDOUS SUBSTANCES

- *Are there any toxic or hazardous substances in the project area?* Check the appropriate box as to whether or not there are potentially toxic and hazardous substances at or near the project site. Provide details to identify what has been found on or near the site. A waiver of liability form will be required prior to release of any funds.

E. ENDANGERED SPECIES AND HABITATS

1. *Are there any threatened, endangered, or sensitive species or habitats known to be on or near the project site?* Describe and attach any supporting documentation as to whether or not there are any species (including birds, mammals, fishes, insects, plants) or habitats that may be listed as of concern on or near the project site.

2. *Is the project located in or near a waterway or other body of water?* If yes, list and describe any waterways (rivers, streams, lakes, ponds) located in or near the project site.

3. *Will there be any modification of the waterway or body of water?* If yes, list and describe any modification or work that will be performed in the waterway or body of water.

F. HYDRAULIC CODE COMPLIANCE (RCW 77.55.100-180)

- *Is your proposed project located below the Ordinary High Water Line in the bed of any salt or fresh water of the state?* Check Yes or No.

If you answer YES and your proposal is selected, you are responsible for contacting the Department of Fish and Wildlife to find out whether they will require a Hydraulic Project Approval for your proposed work. This permitting process takes time, therefore, we recommend beginning the process as soon as possible. **We will require you to submit a copy of the permit, or exemption, before release of any funding.** Activities that normally require a HPA are those which use, divert, or change the bed or flow of state fresh and marine waters.

G. SEPA COMPLIANCE (WAC 197-11)

The State requires that all HMGP projects will go through the State Environmental Policy Act (SEPA) process. The SEPA process is used to ensure that environmental values are considered during decision-making by state and local agencies. If your project is selected for approval, you will be required to submit a copy of your completed Environmental Checklist, Determination of Non-Significance, or Claim for Categorical Exemption, prior to the release of funds. You may contact the Department of Ecology or go to the following website for additional information regarding SEPA, http://www.ecy.wa.gov/programs/sea/sepa/e-review.html.

1. *If you have a completed **Environmental Checklist** or **Determination of Non-Significance,** please include it as part of your application.* Make sure to reference this attachment.

2. *Will there be a **Determination of Non-Significance or Claim for Categorical Exemption** for this project?* Check Yes or No for both DNS and CE. A DNS is issued by the SEPA lead agency after they have determined that a proposal will have no probable significant adverse environmental impact, or that all adverse impacts can be "mitigated" to a non-significant level. A CE project has been exempted from SEPA requirements because these are considered unlikely to have a significant adverse environmental impact or were designated exempt by the Legislature.

3. *If you claim a **Categorical Exemption** under SEPA regulations, please cite the sections of your SEPA procedures or the section of WAC under which you claim exemption.*

4. *Please describe the categorical exemption in adequate detail for evaluation.* If your application is submitted for approval, a letter from your jurisdiction stating that you are claiming categorical exemption will be required.

H. SHORELINE MANAGEMENT ACT COMPLIANCE (RCW 90.58)

- *Is your proposed project located within the boundaries of the Shoreline Management Act (including <u>but not limited to</u>: within 200 feet of any marine shoreline or associated wetland; the banks or associated wetlands of any stream with a flow of 20 cubic feet per second or greater; or the shoreline or associated wetland of any lake 20 acres in size or larger in any of the 15 counties west of the crest of the Cascade Mountain range)?* Check Yes or No.

  If you answer YES and your proposal is selected, you will need to apply for a Shoreline Permit from the appropriate unit of government and submit a copy of the permit, or exemption, before release of any funding. If you already have a permit or have submitted an application, please include these items as part of your application.

I. CRITICAL AREAS DISCLOSURE (RCW 36.70A and RCW 43.17.250)

The Growth Management Act requires all cities and counties in the state to designate critical areas (RCW 36.70A.170(1)(d)) and to adopt development regulations that will protect them (RCW 36.70A.060(2)).

1. *Please provide the date your Growth Management Plan (if required) and the date your Critical Areas Ordinances (CAOs) were approved and adopted. Please provide certification from the Office of Community Development that your plan/CAOs are compliant with the GMA.*

2. *Is your proposed project in any of the **"Critical Area"** classifications identified in Washington State's Growth Management Act? These areas include but are not limited to: Wetlands, Aquifer Recharge Areas, Frequently Flooded Areas,*

Geologically Hazardous Areas such as landslide, erosion, alluvial fan, seismically active, or volcanic areas, and Fish and Wildlife Habitat Areas.

3. *If you answer YES, please identify the critical area category(s).*

4. *If your proposed project is in a designated critical area, explain how your development regulations will protect these areas.*

J. CODE COMPLIANCE ASSURANCE

1. *Will your project meet all applicable codes and standards for the area in which it is located?*

2. *If you answer NO, please describe the exemptions or variances that will be required.* Describe any of the codes and standards that the project will not meet and explain the exemptions and variances that will apply.

CHAPTER 3 BENEFIT/COST ANALYSIS

SECTION 1 COST TO BENEFIT NARRATIVE

This document is intended to provide details for the HMGP grant application and is designed to cover a wide range of potential hazards, such as flood, earthquakes, and windstorms. It also provides definitions and descriptions as to building types and terms used throughout this chapter.

Life of the project, or life-cycle costs, includes the operation and maintenance costs that will occur over the life of the project.

Examples of *benefits* include avoided damages, cumulative damage costs of the protected property over the life of the project and past actual damages.

Applicants can address “subsequent negative impacts,” which can, in some cases, be considered a benefit. These may include estimated loss of value for the private and public property, if project is not completed; reduced maintenance costs; loss of future revenue; estimates of income or wages lost through road closures and other impacts. These estimated benefits must be justifiable through discussion of past documented damages and a likelihood of future disaster-related damages.

Please discuss each of the following issues:

1. *What is the project life in years?*
   How long is the mitigation project expected to last? (100 years for acquisitions; 20 - 40 years [or longer] for other structural solutions)

2. *Describe the life-cycle cost of the proposed project.*
   What are the operation and maintenance costs over the life of the project?

3. *What is the value of the property that the proposed project will protect?*
   Detail the real estate or personal property value of the property that this project will protect either using assessments, appraisals, or some other method to establish the value of the property.

4. *What are the specific documented damage amounts during the recent declared event that you can attribute to the lack of this project?*

   Provide actual (verifiable) damage dollar amounts from the recent event. Describe how much damage your jurisdiction experienced during the recent event (flood, earthquake, ice storm) that you can illustrate this project will reduce or eliminate. *NOTE: Failure to provide documented figures, such as damages from property owners, public works department, or other methodologies, may cause your project to not meet minimum cost/benefit requirements, and therefore be INELIGIBLE. Identify, when known, the insured reimbursements.*

5. *What are the specific documented damage amounts during past events that you can attribute to the lack of this project? Identify how often each of these events occurs.*

   Provide actual (verifiable) dollar damage amounts from past events (label by event) and when those costs occurred. Describe how much damage your jurisdiction has historically experienced during the past disaster events (flood, earthquake, ice storm).

6. *What is the dollar amount (estimated) of damage and associated costs that you would prevent as a direct result of the proposed project over its useful life?*

   Provide best estimates of future dollar damage amounts that could be expected if this project is not completed. Explain how you arrived at these estimates.

   The following two questions relate to indirect costs/benefits. A project site may have no subsequent negative impacts associated with it and could be answered with a "not applicable." However, for those projects that can document subsequent negative impacts, it may improve the cost/benefit ratio. Because these responses are estimates, and may not be actual dollars, reasonableness is stressed. If the figures you submit are 'out of the ordinary,' or excessive, these will not be included in the cost/benefit analysis. Subsequent negative impacts cannot be used in place of actual, direct damages caused by the disaster. This discussion should only be a supplement to the actual dollar amount of damages.

7. *What are the estimated damages associated with subsequent negative impacts, using a unit of assigned value.*
   This could include several impacts, such as estimated future loss of revenue (unit could be per day or per week, for example); loss of property values (unit could be a percentage per event). e.g., "Road closed, with no access, for 5 days. Estimated

costs to neighborhood for lost wages ($125/day for 30 people), is $3750 a day x 5 days = $18,750.00."

8. *Identify displacement costs, including costs for lodging and meals; evacuation costs; charges by Red Cross or other emergency services, etc*.

9. *Please complete the cost benefit summary worksheet below.*
   This is data that should be the same as information given in the narrative section for the proposed alternative project.

Cost Benefit Summary Worksheet

1.	Total Project Cost:		5.	Annual Maintenance Costs: (After project is completed)	
2.	Project Life in Years:		6.	Total Costs of all Past Disasters:	
3.	Effectiveness of Project:		7.	Total Displacement Costs: (Rent, Evacuation, Red Cross, etc.)	
4.	Repair Costs to Pre-disaster Condition: (Most recent event only)		8.	Established Frequency of Recent Event: (Event causing damages)	

Cost Benefit Summary Worksheet Definitions:

1. *Total project costs?* How much is it going to cost? Include federal, state and local matching funds.

2. *Project life in years?* How long is it going to last?

3. *Effectiveness of Project?* What ratio of protection will this project provide? For example, acquisition in a floodplain is 100 percent effective or seismic retrofitting of a building is 80 percent effective for the life of the project.

4. *Repair costs to Pre-disaster condition?* What is the cost to just repair the project to pre-disaster condition without any mitigation? This does not include staff costs or (hazard) flood-fighting. Use only the actual repair costs that <u>this</u> project will prevent.

5. *Annual Maintenance Costs*? How much will it cost to maintain this project each year?

6. *Total Costs of all Past Disasters?* What are the total historical documented damages associated with this project site?

7. *Total Displacement Costs*? If homeowners or renters have had to stay away from their homes for any length of time, how much did it cost?

8. *Event Frequency*? What is the established event frequency, such as a 100-year flood, 32-year earthquake, and 15-year windstorm--not “Three floods in six years.”

   This is not how often it has occurred, but the assigned and official documented event frequency.

SECTION 2 EARTHQUAKE COST EFFECTIVENESS WORKSHEETS

The following section contains Terms and Definitions for earthquake related mitigation, Building Structural Type Descriptions, Key Points and a list of Building Structural Types to aid in completing the worksheets pertaining to seismic projects.

TERMS AND DEFINITIONS FOR SEISMIC MITIGATION PROJECTS

- **Annual Operating Budget** is the cost of providing the public/nonprofit services from a building and includes: rental costs, wages, benefits, supplies, utilities, maintenance costs, equipment cost. For benefit-cost analysis, annual operating budget is used as a measure of the base value of services provided from a building.

- **Building Occupancy** is the average number of persons (employees and visitors) present in the building during the day, evening and night for weekdays and weekends; the number of days per week; the hours per day; and the months per year, for which these number apply. The program calculates the average building occupancy over a 24-hour, 7-day per week period for a total of 168 hours each week.

- **Building Replacement Value** is the typical cost to build a new building of the same size, functionality and level of amenities as the existing building. Building replacement values can be obtained from local building officials, engineering departments, construction firms, or from reference guides such as Means or Marshall & Swift.

- **Building Size** is the total square footage of the building. However, if a retrofit only affects a portion of a building (for example, one wing) then the building size entered should be the size of the affected portion of the building, rather than the total square footage.

- **Building Structural Type** is the primary structural material (wood, steel, concrete, masonry) for the building as well as the type of building system (walls, frames, etc.) that provides vertical and lateral strength for the building. Seismic vulnerability varies with building structural type.

- **Displacement costs** are costs incurred for temporary quarters when an earthquake causes damage that is severe enough to displace occupants to temporary quarters. Displacement costs include: monthly rent of temporary quarters, other monthly costs

such as furniture rentals, extra transportation or operating expenses, one time costs such as roundtrip moving expenses, utility hookup fees and such.

- **Relocation costs** are costs incurred for temporary quarters when occupants must move out of the building in order to complete the mitigation project. If occupants are displaced because of earthquake damage, then they are not assumed to be relocated for the mitigation project. Relocation costs per month may be the same as displacement costs (see above) or sometimes less because relocation can be planned for, while displacement is unexpected.

- **Relocation time** is the duration of relocation of occupants during construction of the mitigation project. Relocation may be complete - all occupants are moved out for a given duration. Relocation may also be fractional with different portions of the building vacated at different times during construction. If relocation is fractional, relocation time is the average relocation time for the building as a whole. For example, if 50% of occupants are relocated for 6 months and then the other 50% are relocated for 6 months (for a 12-month construction project), the relocation time for the building as a whole averages to 6 months.

BUILDING STRUCTURAL TYPE DESCRIPTIONS

Wood

Wood Light Frame
These buildings, typically single- or multiple-family dwellings, are characterized by repetitive framing with wood rafters or joists on wood stud walls, light loads, and small spans. These may have relatively heavy masonry chimneys and may be partially or fully covered with masonry veneer. Most of these buildings are not engineered, but constructed according to the conventional building code provisions. These have components of a lateral-force-resisting system, although it may be incomplete. Lateral loads are transferred by diaphragms to shear walls. The diaphragms are roof panels and floors which may be sheathed with wood, plywood, or fiberboard sheathing. Shear walls are the exterior walls sheathed with wood siding, stucco, plaster, plywood, gypsum board, particle board, or fiberboard. Interior partition walls are commonly sheathed with plaster or gypsum board.

Wood (Commercial or Industrial)
The buildings, typically commercial or industrial buildings with 5,000 square feet or more of floor area and few, if any, interior walls, are characterized by framing by beams over columns. The beams may be glue-laminated (glu-lam) wood or steel beams or trusses. Lateral loads usually are resisted by wood diaphragms and exterior walls sheathed with plywood, stucco, plaster, or other paneling. The walls may have diagonal rod bracing. Large openings for stores and garages often require post-and-beam framing. Lateral load resistance on those lines may be achieved with steel rigid frames or diagonal bracing.

Steel

Steel Moment Frame

These buildings have steel column and beam framing. The beam-column connections may have small moment resisting capacity or some of the beams and columns may be fully developed as moment frames to resist lateral forces. Usually the structure is concealed on the outside by exterior walls, which can be of almost any material and on the inside by ceilings and column furring. Lateral loads are transferred by diaphragms to moment resisting frames. The frames develop their stiffness by full or partial moment connections and can be loaded almost anywhere in the building. Usually, the columns are oriented so that the strong directions of some columns act primarily in one direction while the others act in the other direction, and the frames consist of lines of strong columns and their intervening beams. Steel moment frame buildings are typically more flexible than shear wall buildings. This low stiffness can result in large inter-story drifts that may lead to relatively greater nonstructural damage.

Steel Braced Frame

These buildings are similar to steel moment frame buildings except that the vertical components of the lateral-force-resisting system are braced frames rather than moment frames.

Steel Light Frame

These buildings are pre-engineered and prefabricated with transverse rigid frames. The roof and walls consist of lightweight panels. The frames are designed for maximum efficiency often with tapered beam and column sections built up of light steel plates. The frames are constructed in segments and assembled in the field with bolted joints. Lateral loads in the transverse direction are resisted by the rigid frames with loads distributed to them by shear elements. Loads in the longitudinal direction are resisted entirely by shear elements which can be either the roof or wall sheathing panels, an independent system of tension-only rod bracing, or a combination of panels and bracing.

Steel Frame with Concrete Shear Walls

The shear walls in these buildings are cast-in-place concrete and may be bearing walls. The steel frame is designed for vertical loads only. Lateral loads are transferred by diaphragms of almost any material to the shear walls. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidities.

Steel Frame with Unreinforced Masonry (URM) Fill

This is one of the older types of building. The infill walls usually are offset from the exterior frame members, wrap around them, and present a smooth masonry exterior with no indication of the frame. Solidly-infilled masonry panels, when fully engaging the surrounding frame members (i.e., lie in the small plane), provide stiffness and lateral load resistance to the structure.

Concrete

Concrete Moment Frame
These buildings are similar to steel moment frame buildings except that the frames are reinforced concrete. There are a large variety of frame systems. Some older concrete frames may be proportioned and detailed such that brittle failure of the frame members can occur in earthquakes leading to partial or full collapse of the buildings. Modern frames in zones of high seismicity are proportioned and detailed for ductile behavior and are likely to undergo large deformations during an earthquake without brittle failure of frame members and collapse.

Concrete Frame with Concrete Shear Wall
The vertical components of the lateral-force-resisting system in these buildings are concrete shear walls that are usually bearing walls. In older buildings, the walls often are quite extensive, and the wall stresses are low, but reinforcing is light. In newer buildings, the shear walls often are limited in extent, generating concerns about boundary members and overturning forces.

Concrete Frame w/ URM Infill
These buildings are similar to steel frame buildings with unreinforced masonry infill walls except that the frame is reinforced concrete. In these buildings, the shear strength of the columns after cracking the infill may limit the semi-ductile behavior of the system.

Precast Concrete Tilt-up with Flexible Diaphragm
These buildings have a wood or metal deck roof diaphragm, which often is very large, that distributes lateral forces to precast concrete shear walls. The walls are thin but relatively heavy, while the roofs are relatively light. Older buildings often have inadequate connections for anchorage of the walls to the roof for out-of-plane forces, and the panel connections often are brittle. Tilt-up buildings often have more than one story. Walls can have numerous openings for doors and windows of such size that the wall looks more like a frame than a shear wall.

Precast Concrete Frame with Concrete Shear Walls
These buildings contain floor and roof diaphragms typically composed of precast concrete elements with or without cast-in-place concrete topping slabs. The diaphragms are supported by precast concrete girders and columns. The girders often bear on column corbels. Closure strips between precast floor elements and beam-column joints usually are cast-in-place concrete. Welded steel inserts often are used to interconnect precast elements. Lateral loads are resisted by precast or cast-in-place concrete shear walls. Buildings with precast frames and concrete shear walls should perform well if the details used to connect the structural elements have sufficient strength and displacement capacity. However, in some cases, the connection details between the precast elements have negligible ductility.

Precast Concrete Frame without Shear Walls
These buildings are very similar to the Precast Concrete Frame with Concrete Shear Wall buildings, described above, with the omission of the shear walls. This building

class is generally found only in low-to-moderate seismicity areas, and thus would rarely be found in California or other high seismicity areas.

Masonry

Unreinforced Masonry Bearing Wall

These buildings include structural elements that vary depending on the building's age and, to a lesser extent, its geographic location. In buildings built before 1900, the majority of floor and roof construction consists of wood sheathing supported by wood sub-framing. In large multistory buildings, the floors are cast-in-place concrete supported by the unreinforced masonry walls and/or steel or concrete interior framing. In unreinforced masonry constructed after 1950, wood floors usually have plywood rather than board sheathing. In regions of lower seismicity, buildings of this type constructed more recently can include floor and roof framing that consists of metal deck and concrete fill supported by steel framing elements. The perimeter walls, and possibly some interior walls, are unreinforced masonry. The walls may or may not be anchored to the diaphragms. Ties between the walls and diaphragms are more common for the bearing walls than for walls that are parallel to the floor framing. Roof ties usually are less common and more erratically spaced than those on the floor levels. Interior partitions that interconnect the floors and roof can have the effect of reducing diaphragm displacements.

Reinforced Masonry with Precast Concrete Diaphragm

These buildings have bearing walls similar to those of reinforced masonry bearing wall structures with wood or metal deck diaphragms, but the roof and floors are composed of precast concrete elements such as planks or tee-beams, and the precast roof and floor elements are supported on interior beams and columns of steel or concrete (cast-in-place or precast). The precast horizontal elements often have a cast-in-place topping.

Reinforced Masonry with Flexible Diaphragm

These buildings have perimeter bearing walls of reinforced brick or concrete-block masonry which are the vertical elements in the lateral-force-resisting system. The floors and roofs are framed with either wood joists or beams with plywood or straight or diagonal sheathing, or steel beams with metal deck with or without a concrete fill. Wood floor framing is supported by interior wood posts or steel columns. Steel beams are supported by steel columns.

Other

Mobile Home

These are prefabricated housing units that are transported to location on wheels or moving platforms. At the site, the units are placed on isolated piers or masonry block foundations usually without any positive anchorage. Floors and roofs of mobile homes usually constructed with plywood and outside surfaces are covered with sheet metal.

User-Defined

These are any buildings that do not fall into the categories listed above.

SEISMIC WORKSHEET KEY POINTS

Most of the data sources used for benefit/cost analysis of seismic hazard mitigation projects are simple and straightforward, with specific numbers or estimates provided by the applicants. Examples of data the applicant may provide include building size, number of stories, value of contents, occupancy, annual operating budget, estimated cost for temporary quarters, number of units, value of units, customers served, daily traffic counts and detour times. Below are some key points to consider for each individual seismic worksheet.

- **PUBLIC BUILDINGS STRUCTURAL RETROFIT PROJECTS**
  For seismic projects where one building is demolished and a new building (that may be larger or smaller than the original) is put in its place, please complete a separate worksheet for the old building and the proposed building. The same should be done for change in future use of a building and proposed occupancy. Be sure to include an accurate count of occupancy including employees and visitors. If public meetings or other uses indicate higher occupancy numbers, document in Chapter 2, Section 2 as part of the process description. Ensure that you document your maintenance records.

- **RESIDENTIAL BUILDINGS STRUCTURAL RETROFIT PROJECTS**
  Complete a worksheet for each building/structure and include the public value of the project.

- **PUBLIC BUILDINGS NON-STRUCTURAL RETROFIT PROJECTS**
  The seismic performance of non-structural building components depends significantly on the overall building performance. Therefore, consideration of the building's structural performance is an important aspect of evaluation of all non-structural mitigation projects. Non-structural mitigation may not make sense at all if the building itself is substantially deficient in seismic performance. Be sure to include an accurate count of customers served and number and value of units. If your project consists of more than one type of retrofit (unit/item) please list each type and cost.

  **Average occupancy needed for non-structural retrofits:
  - Sprinkler systems—occupancy of entire building
  - Generic contents—occupancy of entire building
  - Parapet walls—occupancy of fall area only
  - Racks/shelves—occupancy of entire building
  - Generators*—occupancy of entire building
  - Elevators—occupancy of elevator only
  - HVACs—occupancy not needed
  - Ceilings—occupancy of area affected by ceilings under evaluation
  - Electrical cabinets—occupancy of rooms containing cabinets

*Generators may be considered for critical facilities, however, will not be considered for replacing older units which is an O & M function. Elevating on base isolators would be considered if there is a positive benefit/cost analysis.

- **MITIGATION PROJECTS FOR ROADS AND BRIDGES**
  Be sure to include accurate one-way traffic counts and detour times.

- **MITIGATION PROJECTS FOR UTILITIES**
  Utility project worksheets are designed for projects dealing with utility infrastructure and equipment. For mitigation projects for utility buildings, use the Public Buildings worksheets. Be sure to include an accurate count of customers served.

Please use the following Building Structural Types Chart in conjunction with the descriptions to assist you with filling out the Earthquake Cost Effectiveness Worksheets.

BUILDING STRUCTURAL TYPES

			Height			
No.	Label	Description	Range		Typical	
			Name	Stories	Stories	Feet
1	W1	Wood, Light Frame (< 5,000 sq. ft.)		1 - 2	1	14
2	W2	Wood, Commercial and Industrial (>5,000 sq. ft.)		All	2	24
3	S1L	Steel Moment Frame	Low-Rise	1 - 3	2	24
4	S1M		Mid-Rise	4 - 7	5	60
5	S1L		High-Rise	8+	13	156
6	S2L	Steel Braced Frame	Low-Rise	1 - 3	2	24
7	S2M		Mid-Rise	4 - 7	5	60
8	S2H		High-Rise	8+	13	156
9	S3	Steel Light Frame		All	1	15
10	S4L	Steel Frame with Cast-in-Place	Low-Rise	1 - 3	2	24
11	S4M	Concrete Shear Walls	Mid-Rise	4 - 7	5	60
12	S4H		High-Rise	8+	13	156
13	S5L	Steel Frame with Unreinforced	Low-Rise	1 - 3	2	24
14	S5M	Masonry Infill Walls	Mid-Rise	4 - 7	5	60
15	S5H		High-Rise	8+	13	156
16	C1L	Concrete Moment Frame	Low-Rise	1 - 3	2	20
17	C1M		Mid-Rise	4 - 7	5	50
18	C1H		High-Rise	8+	12	120
19	C2L	Concrete Shear Walls	Low-Rise	1 - 3	2	20
20	C2M		Mid-Rise	4 - 7	5	50
21	C2H		High-Rise	8+	12	120
22	C3L	Concrete Frame with Unreinforced	Low-Rise	1 - 3	2	20
23	C3M	Masonry Infill Walls	Mid-Rise	4 - 7	5	50
24	C3H		High-Rise	8+	12	120
25	PC1	Precast Concrete Tilt-Up Walls		All	1	15
26	PC2L	Precast Concrete Frame with	Low-Rise	1 - 3	2	20
27	PC2M	Concrete Shear Walls	Mid-Rise	4 - 7	5	50
28	PC2H		High-Rise	8+	12	120
29	RM1L	Reinforced Masonry Bearing Walls	Low-Rise	1 - 3	2	20
30	RM1M	with Wood or Metal Deck Diaphragms	Mid-Rise	4 - 7	5	50
31	RM2L	Reinforced Masonry Bearing Walls	Low-Rise	1 - 3	2	20
32	RM2M	with Precast Concrete Diaphragms	Mid-Rise	4 - 7	5	50
33	RM2H		High-Rise	8+	12	120
34	URML	Unreinforced Masonry Bearing Walls	Low-Rise	1 - 3	1	15
35	URM		Mid-Rise	4 - 7	3	35
36	MH	Mobile Homes		All	1	10

NOTE: these structural types are as defined in HAZUS.

SECTION 3 FLOOD COST EFFECTIVENESS WORKSHEET

Frequency of disaster-related damages in the area protected by the project: Give the estimated damages that can be expected in a particular event frequency. In a ten year event how much damage would you expect to occur? Use frequencies that meet your jurisdiction's events (25-year, 50-year). This is not how often the damage occurs, but the assigned event frequency. For example, at the site a 25-year event will cause $25,000 in damage, but a 50-year event will cause $100,000 damage. This is the minimum data needed for the Benefit/Cost Analysis. For more complex projects HMGP staff may need to meet with applicants one-on-one or call to gather additional data such as flood depths, first floor elevations, flood velocity. Check with your local emergency management agency, public works or shorelines management for historical data that may be recorded.

These estimates must be based on actual **past** documented damages of the area this project will protect.

Example of Worksheet in Chapter 3

***Event Frequency (years)** (use numbers that fit your situation and are documented) **Example:**	**Estimated Damages expected before Mitigation** (per event)
10-year	**$45,000**
25-year	**$55,000**
30-year	**$75,000**

***Frequency is the 50 year or 25 year flood probability – not that your jurisdiction experiences flooding every two years**.

RECOMMENDATION

It is recommended that your submittal be organized with all attachments referenced in your application and placed in an appendices.